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THE CHALLENGE

Restoring the Great Lakes

Department of the Interior • U.S. Fish and Wildlife Service

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The Vision

Summary

The Great Lakes provide an immense natural resource to the people of the United States and Canada. The Great Lakes combined make up the largest inland body of freshwater in the world, 18 percent of the worlds supply. One-third of the 300,000 square mile drainage basin is covered by water with a total shoreline of over 10,000 miles, longer than the Atlantic and Gulf of Mexico coastlines combined. People are concentrated near the Great Lakes; 60 percent of all Canadians and 20 percent of U.S. citizens live within the Great Lakes Basin. Commercial and recreational fisheries are valued at over $4 billion per year, with about 5 million people participating. Over 25 million people depend on the system for drinking water. Recreation, sports fishing, and tourism alone generate up to $15 billion per year. The lakes serve as a major breeding area and migration corridor for waterfowl and many other species of migratory birds.

The fish and wildlife resources of the Great Lakes are being degraded as a result of over-harvest of fish, chemical contamination, habitat degradation and destruction, and sea lamprey predation.

The U.S. Fish and Wildlife Service has long been involved with the states, provinces, tribes, and Canadian agencies in efforts to manage and restore fish and wildlife populations of the Great Lakes.

The U.S. Fish and Wildlife Service must expand it's actions now to bring about the restoration and enhancement of the fish and wildlife resources of the Great Lakes.

Resource

- Worlds largest inland body of fresh water.
- One-fifth of U.S. industry and population is in the Great Lakes Basin.
- Commercial and sport fishery worth $4 billion annually.
- Drinking water for over 25 million people.
- Outdoor recreation and tourism valued at $15 billion annually.
- A transportation system for bulk goods totalling over 2 million tons annually.
- Over 40 billion kilowatt hours produced by hydropower annually.
- Over 180,000 acres of coastal wetlands.
- Habitat for endangered species.
- Breeding area and migration corridor for waterfowl, colonial nesting birds, and many other species of migratory birds.

There are over 200 colonial nesting waterbird colonies in the U.S. Great Lakes.

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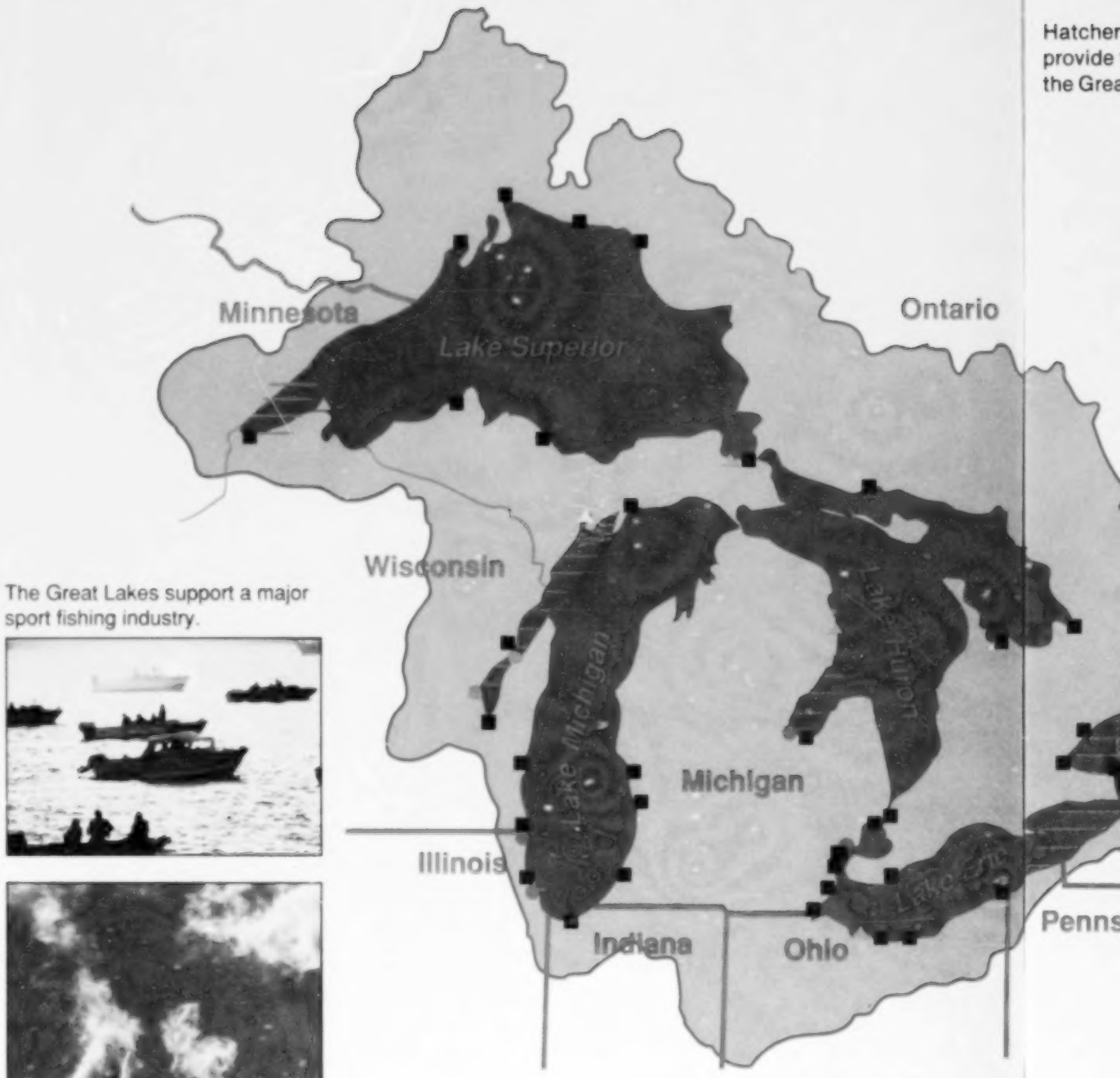

The Great Lakes support a major sport fishing industry.

Atmospheric transport may be the only source for some toxic chemicals to the Great Lakes.

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Issues

Habitat Degradation

Development
Water Pollution
Acid Rain
Sedimentation
Hazardous Waste Management
Erosion
Exotic Species

Habitat

Wetlands
Lake Levels

Legislation

Federal Programs
Water Policy
Coastal Zone Management
Resource Assessment
Planning
Indian Treaty Rights
Water Diversion

Resource Utilization

Wildlife
Sport Fishing
Commercial Fishing
Recreational Boating
Water Use

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The law enforcement network must monitor and inspect commercial and sport fishers, marketing channels, transportation systems, and wholesale and retail outlets.

Mission

To conserve, protect, restore, and enhance fish and wildlife resources of the Great Lakes.

Goals

- Minimize impacts of point and non-point source pollution.
- Restore degraded and destroyed habitats.
- Self-sustaining lake trout populations.
- Stop illegal activities impacting the resources.
- Enhanced sea lamprey control.

Divisions Involved

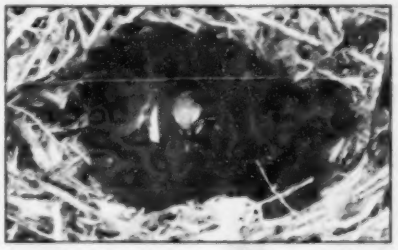
- Fisheries and Federal Aid
- Research
- Refuges and Wildlife
- Law Enforcement
- Fish and Wildlife Enhancement

Contaminants

The Problem

- 362 compounds of concern have been identified in the Great Lakes System.
- Health advisories on the consumption of some fish in all of the Great Lakes and on waterfowl in some areas.
- Deformities, tumors, and reproductive disorders found in birds, fish, mammals, and invertebrates in all of the Great Lakes.
- 42 geographic areas of concern have been identified by the International Joint Commission where beneficial uses of the resources are impaired.

Toxic pollutants cause tumors on fish.



The crossed bill of this cormorant is an effect of toxic contamination of the food chain.

Remedies

Minimize Impacts of Point and Non-Point Source Pollution

- Develop trend analysis on contaminants.
- Identify contaminant sources, develop and implement remedial measures and evaluate.
- Prevent contamination of new areas.
- Identify and determine status of biotic indicators, develop and implement remedial measures and evaluate.
- Participate in the development and implementation of remedial action plans for areas of concern and lake management plans.
- Conduct damage assessments, including Fox River/Lower Green Bay, Saginaw River/Bay, Waukegan Harbor, St. Lawrence River, and Grand Calumet/Indiana Harbor Canal.

Habitat Degradation &

The Problem

- Wetlands in the Basin continue to be lost at a rate of about 20,000 acres a year.
- All of the Illinois coastal wetlands have been destroyed.
- Remaining wetlands are in jeopardy from toxics, development, siltation, erosion, and lake level regulation.
- Spawning habitat is degraded by contaminants, siltation, and development.
- Exotic species that have invaded the Great Lakes displace or prey on native species and degrade the habitat. They include the sea lamprey, carp, ruffe, mitten crab, zebra mussel, eurasian milfoil, purple loosestrife, alewife, and European cladoceran.

Filling for development is one of the primary causes of wetland loss.

Destruction

Remedies

Restore Degraded and Destroyed Habitats

- Determine rate and direction of trends of wetlands and wetlands species.
- Complete National Wetland Inventory in the Great Lakes Basin.
- Digitize Great Lakes Basin wetland maps.
- Publish status and trends of wetlands of the Great Lakes Basin.
- Develop Geographical Information System capabilities at field level.
- Through the North American Waterfowl Management Plan, protect approximately 407,000 acres of critical waterfowl habitat, enhance approximately 135,000 acres of wetlands, and create approximately 19,000 acres of wetlands.
- Increase surveillance and reporting of illegal dredge and fill activities.
- Achieve no net loss of wetlands - promote net gain.
- Prevent new introductions of exotic species and research existing populations of exotics.

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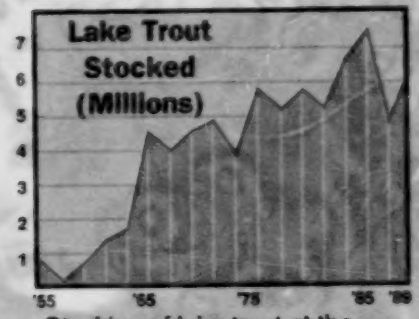
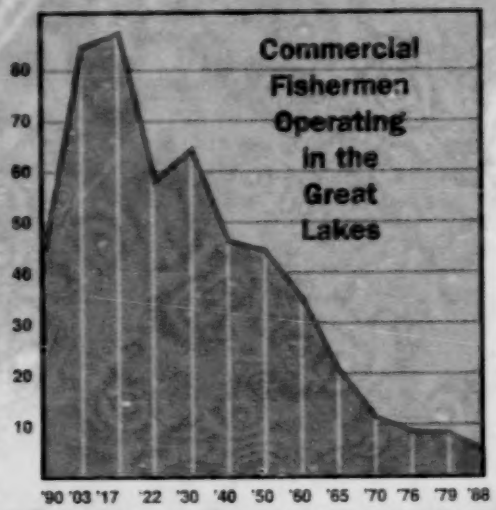
The Problem

Over-Harvest of Fishery

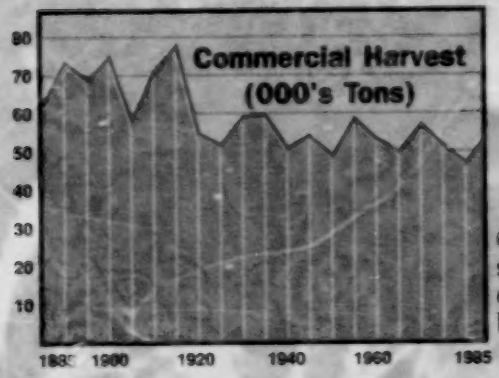
- Few stocked lake trout escape the high fishing pressure
- Fishing is a principal cause of mortality to lake trout aged 11 to 15 years.
- Premature and excessive withdrawal of stocked fish is a major obstacle to restoring self-sustaining stocks.
- Assessment of stocks of fish are used to determine "total allowable catch" for commercial and sport fishers. It is estimated that illegal take of fish exceeds the reported catch by as much as 500 percent.



Stocking of lake trout at the recommended levels is required to meet restoration goals.



Numbers of commercial fishermen have declined because of low populations of high value fish.



Commercial harvest has declined only slightly over the years but the composition of the catch has changed dramatically from high to low value fish.

Remedies

Self-Sustaining Lake Trout Populations

- Improve existing lake trout assessment and monitoring program.
- Assist tribes and states in development of accurate method for lake trout harvest allocation.
- Refine lake trout stocking practices.
- Increase lake trout growth rate.
- Develop and implement accurate, standardized method for lake trout age determination.
- Standardize and implement lake trout tagging program.
- Locate and evaluate spawning and nursery areas and establish management plans.
- Evaluate long term lake trout population trends.
- Evaluate effects of salmon stocking on forage fish base.
- Increase public awareness of the fragility of this resource and instill a public conservation ethic for lake trout utilization.

Stop Illegal Activities Adversely Impacting Resources

- Focus law enforcement efforts on illegal sport and commercial fishing.
- Enhance support of cooperating law enforcement agencies.
- Develop automated data base program to track sport and commercial fishing.
- Increase law enforcement efforts on illegal waterfowl hunting.

Sea Lamprey Control

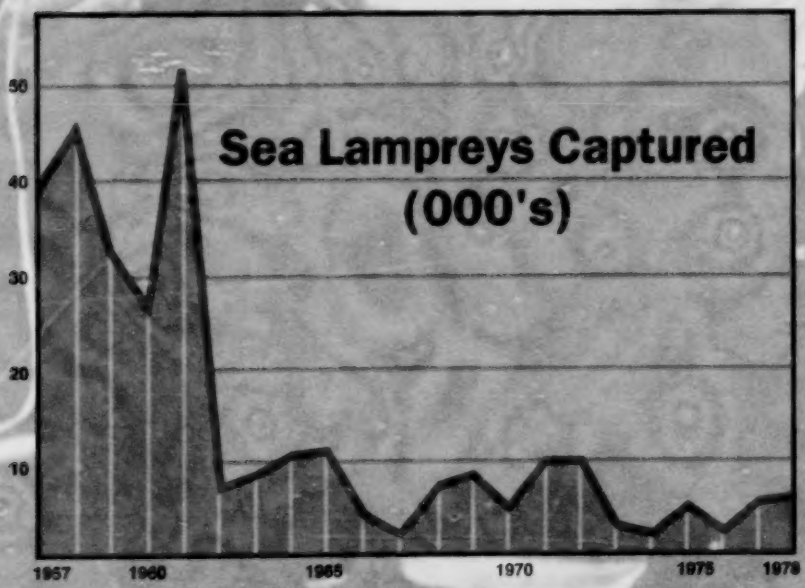
The Problem

- By the mid-50s the sea lamprey had virtually destroyed the lake trout fishery of the Great Lakes.
- Chemicals have reduced the sea lamprey to 10 percent of their former abundance in the Great Lakes, but the public is concerned and remains skeptical of continued use of chemicals.
- Sea lampreys remain a threat and destroy about as many lake trout as are harvested in commercial and sport fisheries combined.
- Enhanced sea lamprey control is needed to provide more fish to sport and commercial fishing industries - alternate sea lamprey control techniques must be researched, developed, and implemented.

Sea lampreys attach to a fish's body and drain it of its body fluids. Each adult lamprey may destroy up to 40 pounds of fish during its life.

Remedies

- Control lamprey populations to 10 percent or less of pre-control abundance.
- Implement integrated management to include alternate control techniques such as barriers and release of sterile male sea lampreys.
- Develop and implement enhanced sea lamprey control techniques for interconnecting waterways.
- Provide for lower lakes substation to improve and expand sea lamprey assessment capability.



Number of sea lamprey's taken at electric barriers operated in eight tributaries of Lake Superior. Barriers were removed in 1978, but control efforts have kept populations at reduced levels. Control efforts began in 1958 and results were evident in 1962.

Institution

The complexity of the Great Lakes ecosystem is matched by the complexity of the institutional arrangements for Great Lakes management. The Great lakes system is managed from every level; from municipalities to national governments. Two Federal governments, eight states, tribal governments and two provinces share the system. Hundreds of entities manage some aspect of the resource, including municipalities, county boards, state conservation agencies, Federal agencies, tribal authorities and regional and international bodies. Adding to the complexity are many research institutes, academia, citizens groups, businesses and private individuals with an interest in Great Lakes resources.

Vision

As a follow-up to "The Challenge" displaying the magnitude, complexity, and importance of the Great Lakes, a more detailed document will be developed that displays "The Vision" for the U.S. Fish and Wildlife Service's Great Lakes program for the next 10 years. Resources needed to accomplish our Great Lakes restoration goals will be documented. Specific actions/ initiatives will be proposed to achieve restoration goals and detailed briefing information on each proposal will be provided.

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TAKE PRIDE IN AMERICA

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen involvement in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

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